

CLAIMS

What is claimed is:

1. A surgical tool for manipulating a joint-replacement cup, the tool comprising:
 - a. a conduit having a head end and a drive end, wherein the head end is adapted to removably attach to the cup; and
 - b. a drive mechanism extending between the head end and the drive end, the drive mechanism rotating on a first axis at the head end and on a second axis on the drive end;
 - c. wherein at least a portion of the drive mechanism rotates on a third axis at a first angle with respect to the first axis and a second angle with respect to the second axis.
2. The surgical tool of claim 1, wherein the first and second angles are substantially equal.
3. The surgical tool of claim 2, wherein the first and second axes are substantially parallel.
4. The surgical tool of claim 1, wherein the cup comprises an acetabular reamer.
5. The surgical tool of claim 1, further comprising a plurality of interlocking links extending through the conduit.
6. The surgical tool of claim 1, wherein each of the links includes a male end and a female end.

7. The surgical tool of claim 6, wherein the male end includes a plurality of exterior facets and the female end includes a plurality of interior facets.
8. The surgical tool of claim 7, wherein the exterior facets define a hexagon.
9. The surgical tool of claim 7, wherein each link rotates along a link axis, and wherein the male end has a radius of curvature in a plane parallel to the rotational axis.
10. The surgical tool of claim 9, wherein the female end has a second radius of curvature in the plane.
11. The surgical tool of claim 6, further comprising a bushing disposed within the female end of a first of the links and the male end of a second of the links.
12. The surgical tool of claim 11, wherein the bearing is spherical.
13. The surgical tool of claim 1, wherein the acetabular cup is comprises a reamer surface.
14. The surgical tool of claim 1, wherein the head comprises a cup support receiving an acetabular cup.
15. A surgical tool for positioning a joint-replacement cup, the joint-replacement cup including a threaded hole, the surgical tool comprising:
 - a. a conduit having a head end and a drive end;
 - b. a drive mechanism rotatably attached to the drive end of the conduit, the drive mechanism rotating on a first axis; and

- c. a head connected to the head end of the conduit, the head including:
 - i. a cup attachment supporting the cup; and
 - ii. a threaded attachment actuator having an attach state and a release state, the attach state securing the cup attachment to the cup and the release state releasing the cup;
 - iii. wherein the actuator support transitions between the attach and release states without rotating with respect to the conduit.
- 16. The surgical tool of claim 15, wherein the attachment actuator includes first and second jaws extending into the hole.
- 17. The surgical tool of claim 16, wherein the attachment actuator further includes a wedge extending between the first and second jaws, and wherein the attach state corresponds to a first wedge position and the release state corresponds to a second wedge position.
- 18. The surgical tool of claim 17, wherein the hole comprises female threads, and wherein the first and second jaws include partial threads.
- 19. The surgical tool of claim 18, wherein the partial threads engage the female threads in the first wedge position and disengage the female threads in the second wedge position.
- 20. The surgical tool of claim 15, wherein the conduit includes at least one bend between the head end and the drive end.

21. The surgical tool of claim 15, further comprising a plurality of interlocking links extending through the conduit.
22. The surgical tool of claim 15, wherein each of the links includes a male end and a female end.
23. The surgical tool of claim 22, wherein the male end includes a plurality of exterior facets and the female end includes a plurality of interior facets.
24. The surgical tool of claim 23, wherein the exterior facets define a hexagon.
25. The surgical tool of claim 23, wherein each link rotates along a link axis, and wherein the male end has a radius of curvature in a plane parallel to the rotational axis.
26. The surgical tool of claim 25, wherein the female end of each link has a second radius of curvature in the plane.
27. The surgical tool of claim 26, further comprising a bearing disposed within the female end of a first of the links and the male end of a second of the links.
28. A tool comprising:
 - a. a head end;
 - b. a drive end;
 - c. a conduit extending between the head end and the drive end; and
 - d. a drive mechanism extending through the conduit from the head end to the drive end, the drive mechanism including a plurality of interlocking links, each link including a male end and a female end;

- e. wherein the interlocking links transmit torque between the drive end and the head end.
- 29. The tool of claim 28, wherein the conduit is rigid.
- 30. The tool of claim 28, wherein the male end includes a plurality of exterior facets and the female end includes a plurality of interior facets.
- 31. The tool of claim 30, wherein the exterior facets define a hexagon.
- 32. The tool of claim 30, wherein each link rotates along a link axis, and wherein the male end has a radius of curvature in a plane parallel to the rotational axis.
- 33. The tool of claim 32, wherein the female end has a second radius of curvature in the plane.
- 34. The tool of claim 28, further comprising a bushing disposed within the female end of a first of the links and the male end of a second of the links.
- 35. The tool of claim 34, wherein the bushing is spherical.
- 36. The tool of claim 28, wherein the head end is adapted to receive a bit.
- 37. The tool of claim 36, wherein the bit comprises a joint-replacement cup.
- 38. The tool of claim 37, wherein the cup is an acetabular cup.

39. The tool of claim 37, wherein the cup comprises a reamer surface.
40. The tool of claim 28, wherein the conduit comprises at least one bend.
41. The tool of claim 28, wherein the conduit is rigid.